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Assessment of biodiversity of Pushprajgarh Forest of Anuppur District (M.P.)

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Abstract
The current research focused on evaluating the biodiversity status of Pushprajgarh forest, located in Anuppur, encompassed an extensive survey of the forested region. To accomplish this, field investigations were systematically conducted at various intervals throughout the winter season. Sampling procedures were meticulously carried out following the grid map that delineates the area under study. As part of the research process, available plant species were carefully identified, and a comprehensive taxonomic inventory documenting the flora was compiled with precision. The observations made during the phytodiversity assessment yielded notable findings, which highlighted a floristic inventory comprising 188 distinct plant species. These species are distributed across 158 genera and categorized under a total of 53 botanical families, showcasing the rich diversity present within this forest ecosystem.

Keywords: Biodiversity, forest, Flora, Pushprajgarh forest

Introduction

Forests represent intricate and irreplaceable ecosystems that act as natural reserves, especially within highly urbanized regions, supporting an immense variety of plant, animal, and microbial species. These organisms coexist in a delicate, ecologically sustainable manner, providing essential ecosystem services that contribute significantly to the stability and vitality of these landscapes. Understanding and monitoring the biodiversity harbored within such green spaces are critically important for assessing ecological changes, identifying the need for conservation strategies, and evaluating the overall health and functionality of confined natural habitats. Effective biodiversity monitoring begins with establishing a comprehensive database that catalogs the flora and fauna unique to the area under study. The proposed study aims to undertake a systematic evaluation of biodiversity and conduct an exhaustive assessment to document and classify the plant species present within the Pushprajgarh forest in Anuppur district, Madhya Pradesh. As a baseline investigation, this effort seeks to enrich our understanding of local flora while laying a foundation for future research. Previous taxonomic studies, such as those conducted by Sonwani (2020) [1], have focused on cataloging plant diversity in the Anuppur area as part of the initiative to create a detailed flora-specific record. Building upon such work, comparing newly gathered biodiversity data with ongoing and systematic future collections will enable researchers to detect temporal shifts in species composition, manage exotic and invasive species effectively, predict plant species at risk of local extinction, and examine specific habitats that support significant biodiversity (Oommachan, 1977; Khan, 1996; Khan and Malhotra, 2002; Modak 2018) [2-5]. Furthermore, such assessments will contribute to understanding the broader role of forests in ecological improvement and environmental preservation. This study highlights the importance of continued research to develop informed, long-term management frameworks. Research of this nature not only facilitates biodiversity conservation but also informs planning for sustainable development in forest areas, ultimately promoting ecological resilience and balanced cohabitation between natural ecosystems and urban advancement.

Material and Methods

Pushprajgarh forest in Anuppur district, Madhya Pradesh, is located approximately between 22.99° N and 81.65° E. The forest geography includes the highlands of the Maikal mountain range and is traversed by several rivers, such as the Narmada and Johilla, which originate from the nearby Amarkantak region. The area is predominantly a hilly, forest-covered region with a temperate climate. The rich diversity of plants Identification was carried out with the help of Floras and monographs and with the herbarium specimens available with the previous taxonomic studies. Bentham and Hooker system of classification was followed (Hooker 1892-1897; Ray 1984; Mudgal *et al*., 1977; Singh *et al*., 2001; Haines 1921-1924 and Saket & Saini, 2016) [6-11]. For present investigation, availability of flora were studied in different parts of the existing forest area by covering entire study area and considering small sampling units by using grid map of the area. Geo tagged photography of floral diversity was carried out for further investigation, relating to taxonomical categorization.

Observations

The present study of Pushprajgarh forest recorded 188 Angiospermic plant species from the study area.

Results and Discussion

In all, 188 plants species were reported belonging to 158 genera and 53 families. Habit wise analysis revealed that amongst the 188 plants species, there was representation of 51.06% Trees, 8.51% Shrubs, 23.40% Herbs, 5.32% Grasses and 11.70% Climbers (Table-1 and Fig. 1). Tree species diversity was found largest among the habit wise distribution and indicate a definite shape of the vegetation. Among the total angiospermic plant species, 174 species of Dicotyledons were recorded, distributed in 48 families, while 14 Monocotyledonous plants species were reported from 5 families (Table-3). This record reflected the dominance of dicots over monocots. The floral status clearly reflects a rich phyto-diversity within the study area. Among the tree species, 52% are reported as ‘abundant’, based on their occurrence within the study area and 48% as ‘uncommon’. Most of the tree diversity (76%) was found growing wild and showing their luxuriant natural growth and regeneration, while 24% tree species were found planted time to time. Papilionaceae was found as the most diverse and dominant plant family, representing 12 genera and 17 species. About 55.85% species diversity is restricted to the ten dominant families (Table- 2).

Table 1: Habit wise distribution of representative plant species.

S.No.	Habit	No. of Species & Percentage
1.	Trees	96 (51.06%)
2.	Shrubs	16 (8.51%)
3.	Herbs	44 (23.40%)
4.	Grasses	10 (5.32%)
5.	Climbers	22 (11.70%)

Table 2: Ten Dominant families with maximum number of genera and plant species.

S.No.	Families	Number of Genera	Number of species
1.	Papilionaceae	12	17
2.	Apocyanaceae	09	11
3.	Poaceae	09	10
4.	Euphorbiaceae	08	09
5.	Bignoniaceae	09	09
6.	Asteraceae	08	08
7.	Mimosaceae	06	10
8.	Caesalpiniaceae	06	08
9.	Rubiaceae	06	07
10.	Acanthaceae	05	06

Table 3: Family wise number of plant species and genera found in the Pushprajgarh Forest Anuppur (M.P.)

S.No.	Families	No. of genera	No. of sps.	S.No.	Families	No. of genera	No. of sps.
Dicotyledonae							
1.	Asteraceae	8	8	25.	Lytheraceae	2	2
2.	Malvaceae	3	4	26.	Onagraceae	1	1
3.	Anacardiaceae	4	4	27.	Cactaceae	1	1
4.	Cleomaceae	1	1	28.	Menispermaceae	3	3
5.	Capparidaceae	2	2	29.	Rubiaceae	6	7
6.	Rutaceae	3	3	30.	Ebanaceae	1	1
7.	Bombaceae	2	2	31.	Sapotaceae	2	2
8.	Sterrculiaceae	2	2	32.	Nyctanthaceae	1	1
9.	Tiliaceae	3	3	33.	Boraginaceae	2	3
10.	Oxalidaceae	2	2	34.	Ehretiaceae	1	1
11.	Balsaminaceae	1	1	35.	Apocyanaceae	9	11
12.	Burseraceae	2	2	36.	Flacourtiaceae	1	1
13.	Simaroubaceae	2	2	37.	Asclepidiaceae	1	1
14.	Meliaceae	1	1	38.	Convolvulaceae	4	5
15.	Celastraceae	3	3	39.	Bignoniaceae	9	9
16.	Rhamnaceae	2	4	40.	Acanthaceae	5	6

17.	Vitaceae	1	1	41.	Annonaceae	2	3
18.	Sapindaceae	1	1	42.	Verbenaceae	3	4
19.	Moringaceae	1	1	43.	Lamiaceae	2	2
20.	Papilionaceae	12	17	44.	Nyctaginaceae	1	1
21.	Caesalpiniaceae	6	08	45.	Amaranthaceae	4	4
22.	Mimosaceae	6	10	46.	Santalaceae	1	1
23.	Combretaceae	3	6	47.	Euphorbiaceae	8	9
24.	Myrtaceae	3	3	48.	Moraceae	1	4
Monocotyledonae							
1.	Dioscoreaceae	1	1	4.	Asparagaceae	1	1
2.	Commelinaceae	1	1	5.	Poaceae	09	10
3.	Cyperaceae	1	1				

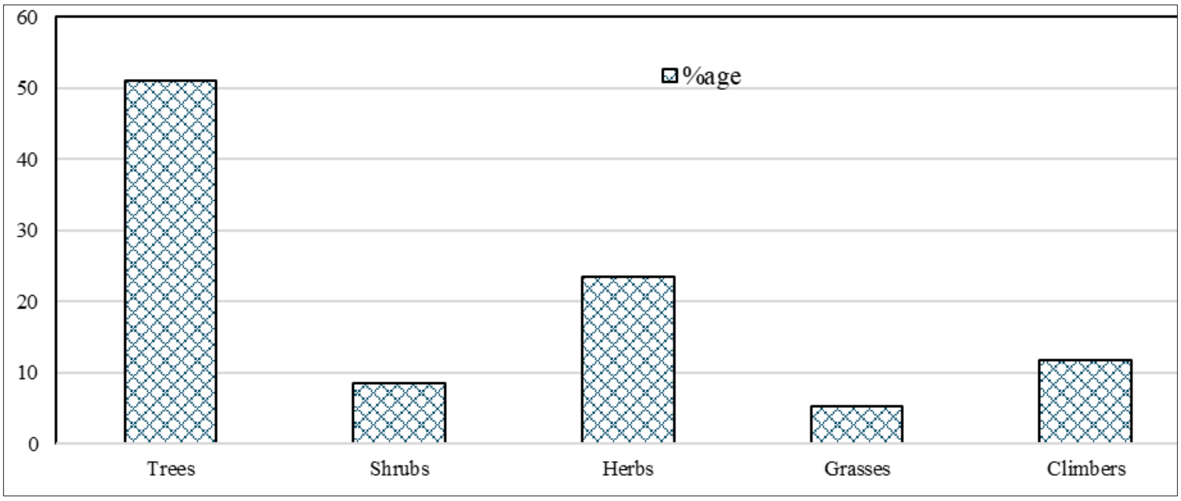

Fig 1: Graph analysis Habit wise distribution of representative plant species

Conclusion

The rich diversity of life can raise awareness in society about the physical, ecological, social, and aesthetic benefits of biodiversity within local communities. Such areas play a vital role as green spaces in urban planning and serve as effective tools for fostering conservation education. Acting as the city's lungs, these green zones help absorb carbon dioxide emissions, functioning as models of urban environmental sustainability and as carbon sinks. Consequently, forests should be developed and preserved to maximize their invaluable contribution to society and ecological well-being.

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References

1. Sonwani A. Flora of Anuppur District (M.P.). Ph.D. Thesis, A.P.S. University, Rewa (M.P.); 2020.
2. Oommachan M. Flora of Bhopal. Jain Brothers Publishers, Bhopal; 1977.
3. Khan SS. Endangered and threatened flora of Bhopal I - Trees. Ind J Appl Pure Biol. 1996; 11(1): 67-72.
4. Khan SS, Malhotra D. Plant genetic diversity exploration, evaluation, conservation: Angiospermic diversity in Bhopal - reassessment with particular reference to endangered species and their conservation. East West Press Pvt. Ltd.; 2002.
5. Modak M. Trees of Bhopal. Published project sponsored by M.P. State Biodiversity Board, Bhopal; 2018.
6. Hooker JD. Flora of British India. BSI Publication, Calcutta, India; 1892-1897. Vol. 1-7.
7. Ray GP. Grasses of Madhya Pradesh. BSI Publication, Allahabad, India; 1984.
8. Mudgal V, Khanna KK, Hajara PK. Flora of Madhya Pradesh. BSI Publication, Calcutta, India; 1977.
9. Singh NP, Khanna KK, Mudgal V, Dixit RD. Flora of Madhya Pradesh. BSI Publication, Calcutta, India; 2001.
10. Haines HH. The Botany of Bihar and Orissa. BSI Publication, Calcutta, India; 1921-1924. Vol. 1-3.
11. Saket SP, Saini VK. A comprehensive floristic study of Jabalpur District with special emphasis to dominant family. Int J Sci Res (IJSR). 2016; 5(11): 90-91.